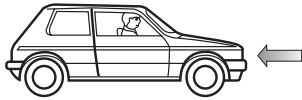


1 Forces are pushes or pulls. Forces can make things happen. They can:

- A** start an object moving
- B** slow down a moving object
- C** make an object change shape.

Statement **A**, **B** or **C** describes what the force is doing in each picture.
Put the correct letter in the box beneath each picture.







2 We show forces acting on objects by using arrows. The arrows show the direction in which the forces act.

Write the name of the correct force against each arrow. Choose from the list below.

upthrust

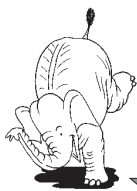
gravity

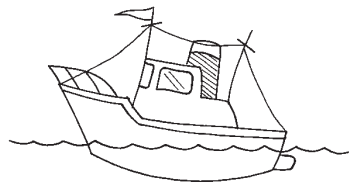
weight

friction

air resistance

water resistance







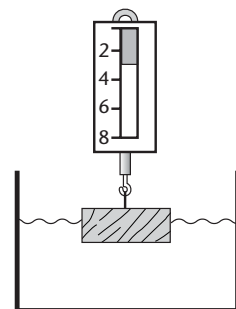
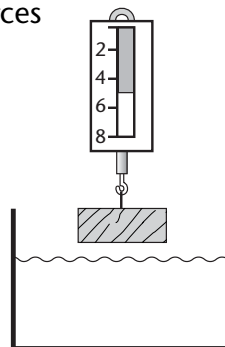
3 Look at the pictures opposite. Compare the forces shown on the force meters.

- a** What do you notice about the size of the force as the block of wood is lowered into the water?

.....
.....

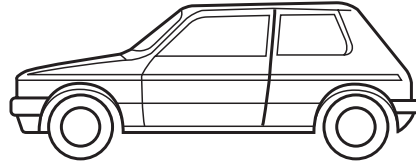
- b** Can you think why this might happen?

.....
.....



- 1 a** Draw an arrow on the diagram to show the force of friction on the car.
Label it *friction*.

- b** Draw an arrow to show the weight of the car.
Label it *weight*.



- c** Draw an arrow to show the driving force of the car.
Label it *driving force*.

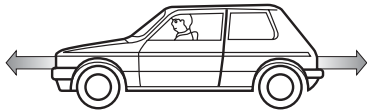
- d** Draw an upwards arrow equal and opposite to the weight.
Label it *reaction force*.

- e** What would happen if the reaction force was less than the weight?

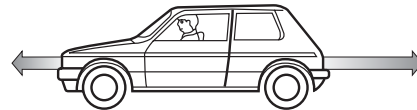
.....

- f** Is it possible for the reaction force to be more than the weight?

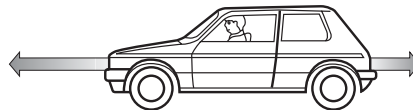
- 2** Draw lines to match the descriptions to the diagrams.



car slowing
down



car going
faster



car travelling
at steady speed

- 3** Write *true* or *false* for each statement about mass, weight and gravity.

- a** Mass is a measure of how much stuff something is made of.

.....

- b** Gravity is a measure of how much something weighs.

.....

- c** Gravity and mass are forces, weight is not.

- d** The weight of something on Earth (in N) = mass (in kg) $\times 10$.

.....

4 Complete the sentences by choosing from this list.

50 N

500 N

5000 N

50 kg

500 kg

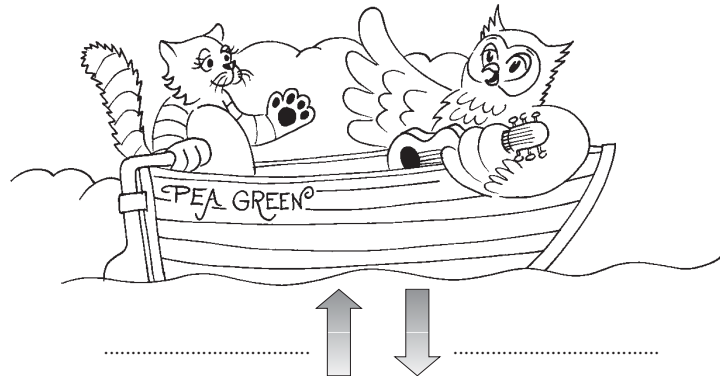
5000 kg

- a Mark has a mass of 50 kg. His weight is
- b His motorbike weighs 5000 N. It has a mass of
- c His helmet has a mass of 5 kg. It weighs

5 Write *balanced* or *unbalanced* to describe the forces in each of these situations.

- a A sprinter as she leaves the starting block
- b A lorry cruising along the motorway at 60 mph
- c A car stopping at a traffic light
- d A duck floating on a pond

- 6 a Label the force arrows on the owl and the pussy cat's boat with the names of the forces.



- b If the owl flew away, how would the forces on the boat change?

.....

- c Would the boat be higher or lower in the water without the owl?

.....

- d If the boat started to leak, how would the forces change?

.....

- e What would happen when the boat was filled with water?

.....

7 Look at this forcemeter. It measures the weight of different masses.

a What is the weight of the bag hanging on the forcemeter?

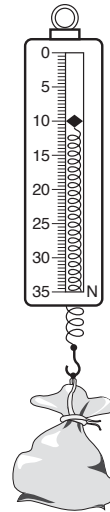
..... N

b What is the mass of the bag hanging on the forcemeter?

..... kg

c What mass would the bag be if the forcemeter read 25 N?

.....



8 Fill in the answers to find out the name of the car that went faster than the speed of sound.

1 The unit of force

2 What happens to an elastic material when a weight is hung on to it

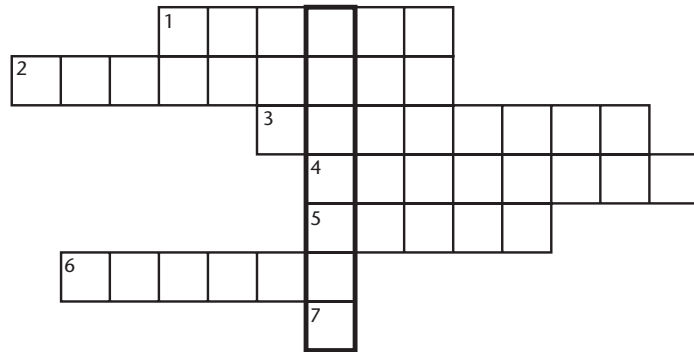
3 A force that slows things down

4 A force that makes things float

5 How fast an object moves

6 The force of gravity on your mass

7 How many hours it takes to drive 100 miles at 50 mph



The name of the car is

.....

9 Circle the things where very little or no friction is wanted. Underline the things where high friction is needed.

car brake pads

ice skates

inside of a frying pan

match and matchbox

car tyres

ski slope

playground slide

inside an engine

football boots